

I claim:

1. A method comprising precipitating a lithium phosphate from a mixture comprising a first aqueous solution containing lithium and sodium ions and a second aqueous solution containing phosphate and borate ions, isolating the precipitate, and washing and drying the precipitate to form a lithium phosphate catalyst.
2. The method of claim 1 wherein the first solution is prepared by dissolving in water a lithium compound selected from the group consisting of lithium hydroxide, lithium nitrate, lithium acetate, and mixtures thereof and a sodium compound selected from the group consisting of sodium hydroxide, sodium nitrate, sodium acetate, sodium carbonate, and mixtures thereof.
3. The method of claim 2 wherein the lithium compound is lithium hydroxide.
4. The method of claim 2 wherein the sodium compound is sodium hydroxide.
5. The method of claim 2 wherein the lithium compound is lithium hydroxide and the sodium compound is sodium hydroxide.
6. The method of claim 1 wherein the second solution is prepared by dissolving in water a phosphate compound selected from the group consisting of sodium phosphates, potassium phosphates, ammonium phosphates, and mixtures thereof and a borate compound selected from the group consisting of boric acid, sodium borates, potassium borates, ammonium borates, and mixtures thereof.
7. The method of claim 6 wherein the phosphate compound is a sodium phosphate.
8. The method of claim 6 wherein the borate compound is boric acid or a sodium borate.
9. The method of claim 6 wherein the phosphate compound is a sodium phosphate and the borate compound is a sodium borate.
10. The method of claim 1 wherein the first and the second solutions are heated, prior to mixing, to a temperature within the range of about 45°C to about 95°C.

11. The method of claim 10 wherein the temperature is within the range of about 60°C to about 80°C.
12. A lithium phosphate catalyst which contains effective amounts of boron and sodium to enhance the catalyst activity and selectivity for an isomerization of alkylene oxide to allylic alcohol.
13. The catalyst of claim 12 which contains from about 0.03 wt% to about 1 wt% of boron.
14. The catalyst of claim 12 which contains from about 0.1 wt% to about 0.8 wt% of boron.
15. The catalyst of claim 12 which contains from about 0.01 wt% to about 1 wt% of sodium.
16. The catalyst of claim 12 which contains from about 0.02 wt% to about 0.8 wt% of sodium.
17. The catalyst of claim 12 which has a boron/lithium molar ratio within the range of about 0.001 to about 0.05.
18. The catalyst of claim 12 which has a boron/lithium molar ratio within the range of about 0.003 to 0.03.
19. The catalyst of claim 12 which has a boron/lithium molar ratio within the range of about 0.007 to about 0.02.
20. The catalyst of claim 12 which has a sodium/lithium molar ratio within the range of about 0.0002 to about 0.02.
21. The catalyst of claim 12 which has a sodium/lithium molar ratio within the range of 0.003 to about 0.01.
22. An isomerization process of propylene oxide to allyl alcohol in the presence of a lithium phosphate catalyst which contains effective amounts of boron and sodium.
23. The process of claim 22 which is performed in slurry phase.
24. The process of claim 22 which is performed at a temperature within the range of 200°C to about 300°C.
25. The process of claim 22 which is performed at a temperature within the range of about 240°C to about 280°C.